**INTRODUCTION OF *PHYSOCARPUS* MAXIM IN NORTHERN KAZAKHSTAN**

Y.A. Krekova, N.K. Chebotko

Kazakh Research Institute of Forestry and Agricultural Afforestation, Kazakhstan [yana24.ru@mail.ru](mailto:yana24.ru@mail.ru)

Northern Kazakhstan comprises 4 provinces: North Kazakhstan Oblast, Pavlodar Oblast, Kostanay Oblast and Akmola Oblast. The region has rather few species of shrubs and trees (123). Such a low number of species is caused by the harsh climate. With sharp fluctuations of average monthly air temperatures, the mean yearly temperature is 0.8°С. At 260-390 mm per year, the amount of precipitation is distributed unevenly throughout the year. The region is characterized by strong winds.

The objects of introduction study in Northern Kazakhstan are the tree nursery and arboretum of the Kazakh Research Institute of Forestry, which were founded in 1961 and 1966 respectively. The study looked at 49 samples of Physocarpus Maxim of 10 different species, forms and kinds. Forty one of the samples were acquired using seeds, five using saplings and three using seedlings.

*Physocarpus* Maxim. (the Ninebark) belongs to the *Rosaceae* Juss family. The genus includes about 10 species and is native to East Asia and North America. *Physocarpus* Maxim. are 2-3 meter tall branchy deciduous shrubs with peeling bark and large 3-5 lobe leaves. The white blossoms occur in drooping corymbose clusters. *Physocarpus* Maxim. blooms in June. The fruit of the shrub are follicles which become red after blossom fading and later acquire a brown shade.

The ninebark is a frost-hardy, drought-resistant and shade-enduring plant. It is characterized with quick growth. Unpretentious to soil conditions, the plant is vulnerable to excessive moisture or stagnant water. Also, the ninebark endures urban conditions well (gas-resistant).

In the course of the study, 8 species, forms and kinds of ninebark were introduced into the tree nursery; to date 6 species remain. The loss of plants was caused by the difference in local conditions as well as lack of adaptation and timely watering and care.

*Ph.opulifolius* (L.)Maxim., *Ph. capitatus*(Pursh) Ktze., and *Ph. intermedia* (Rydb.) Schneid. were acquired in the form of seeds from Nizhniy Novgorod. Their age is 46 years.

Samples of *Ph. Amurensis* Maxim. seeds were received from Tomsk. Their age is 46 years.

The younger trees (26 years old) - *Ph. monogynus*(Torr.) Coult. and *Ph. Ribesifolius* Kom. were acquired as seeds from Yerevan and Lipetsk as part of an exchange program.

Five species were introduced to arboretum, but to date only one species - *Ph.opulifolius* (L.)Maxim. – has remained. The seeds were received in 1960 from Nizhniy Novgorod. The age is 55 years.

In the conditions of Northern Kazakhstan all samples of *Physocarpus* Maxim. go through a full cycle of seasonal development. The vegetation in all studied species is observed to start around 14-23 April and continues until 12-17 October. The ninebark blossom regularly from the age of 5-6, in the second half of June (from 15 to 23). The maturity phase starts around 20 July and ends 24-28 August. The leaves preserve well into the fall and acquire a reddish, yellow or orange shade. The plants did not suffer from any diseases or pests. They are very tolerant to clipping. These alien plants are ornamental shrubs extensively used in landscaping populated areas.